CLAIMS:

1. A filter (20) for injecting data dependent jitter and level noise into a digital data signal (1) with a given data rate (A), the filter (20) reacting on a step function with a step response (2) showing after a first increase or decrease (B) a substantial extreme value (C), such as a minimum or a maximum, of opposite direction than the first increase or decrease, whereby the temporal occurrence of the substantial extreme value (C) with respect to the step function is substantially in the range of the given data rate (A).

2. The filter (20) of claim 1, wherein the filter (20) is of at least second order.

3. The filter (20) of claim 2, wherein the filter (20) comprises a resistive element (210) with resistance value of R_2, an inductive element (220) with an inductivity value of L_1, and a capacitive element (230) with capacitance value of C_1.

4. The filter (20) of claim 3, wherein the resistive value of R_2 and/or the capacitive value of C_1 can be varied.

5. The filter (20) of claim 3, wherein the resistive element (210), the inductive element (220), and the capacitive element (230) are coupled as a series or a parallel resonance circuit

6. The filter (20) of claim 2 comprising a resistive element (210) and at least two elements of capacitive (230) and/or inductive (220) behavior.

7. The filter (20) of claim 2, wherein both zeros of the second order filter (20) are located on the unit circle, and both zeros are closer to the imaginary axis than the poles or the poles are located on the real axis.

8. A jitter injection filter (20) for injecting data dependent and level noise into a digital data signal with a given data rate, the filter (20) reacting on an increasing step function with a step response showing at least one

substantial minimum after a first increase, whereby the temporal occurrence of the at least one substantial minimum from the step function is substantially in the range of the given data rate.

9. Use of a filter (20) according to claim 1 or 8 for injecting data dependent and level noise into a digital data signal with a given data rate.

10. A method for injecting data dependent jitter and level noise into a digital data signal (1) with a given data rate (A) by using a filter (20) according to claim 1 or 8.

11. A method for injecting data dependent jitter and level noise into a digital data signal (1) with a given data rate (A), the method comprising the steps of:

(a) applying the digital data signal (1) to a filter (20) reacting on a step function with a step response (2) showing after a first increase or decrease (B) a substantial extreme value (C), such as a minimum or a maximum, of opposite direction than the first increase or decrease, and

(b) adjusting the filter (20) so that the temporal occurrence of the substantial extreme value (C) with respect to the step function is substantially in the range of the given data rate (A).

12. A software program or product, preferably stored on a data carrier, for executing the method of claim 11 when run on a data processing system such as a computer.